

**FIELD SAMPLING PLAN
FOR THE
BUCKEYE KANKAKEE GASOLINE SPILL
KANKAKEE, KANKAKEE COUNTY, ILLINOIS**

REVISION 0

Prepared for

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region V

Prepared by

WESTON SOLUTIONS, INC.
Region V Superfund Technical Assessment and Response Team

March 18, 2014

Approved by: _____

EPA Region V
On-Scene Coordinator

Date: _____

Project Dates of Sampling:	March 2014
CERCLA Site/Spill Identifier No.:	Z5MX
Contractor Organization:	Weston Solutions, Inc.
Contract Name:	START III
Contract No.:	EP-S5-06-04
Technical Direction Document No.:	S05-0005-1403-006
Document Control No.:	2306-1C-BL NK

ACRONYM LIST

Antea	Antea Group
ASTM	American Society of Testing and Materials
bgs	Below ground surface
Buckeye Pipeline	Buckeye Partners, L.P.
COC	Chain-of-custody
CRA	Conestoga-Rovers and Associates
DRO	Diesel-range organic
FSP	Field sampling plan
GPS	Global positioning system
GRO	Gasoline-range organic
IDW	Investigation-derived waste
IEPA	Illinois Environmental Protection Agency
MCL	Maximum Contaminant Level
MS/MSD	matrix spike/matrix spike duplicate
MTBE	Methyl tert-butyl ether
OSC	On-scene coordinator
PAH	Polycyclic aromatic hydrocarbon
PID	Photoionization detector
PPE	Personal protective equipment
QAPP	Quality Assurance Project Plan
QA/QC	Quality Assurance/Quality Control
SOP	Standard operating procedure
START	Superfund Technical Assessment and Response Team
TACO	Tiered Approach to Corrective Action
VOC	Volatile organic compound
USCS	Unified Soil Classification System
WESTON	Weston Solutions, Inc.

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1. INTRODUCTION

This Field Sampling Plan (FSP) identifies the data collection activities and associated quality assurance/quality control (QA/QC) measures specific to the Buckeye Kankakee Gasoline Spill site located near the intersection of Illinois State Route 113 and Indian Trail Road in Kankakee, Kankakee County, IL (the Site, **Figure 1**). All data will be generated in accordance with the quality requirements described in the Superfund Technical Assessment and Response Team (START) III Generic *Quality Assurance Project Plan (QAPP)*, dated June 2006. The purpose of this FSP is to describe site-specific tasks that will be performed in support of the stated objectives for this phase of sampling. The FSP will reference the QAPP for generic tasks common to all data collection activities including routine procedures for sampling and analysis, sample documentation, equipment decontamination, sample handling, data management, assessment, and data review. Additional site-specific procedures and/or modifications to procedures described in the *START III Generic QAPP* are described in the following FSP elements.

This FSP is prepared, reviewed, and approved in accordance with the procedures detailed in the *START III Generic QAPP*. Any deviations or modifications to the approved FSP will be documented using **Table 1: FSP Revision Form**.

2. PROJECT MANAGEMENT, FSP DISTRIBUTION, AND PROJECT TEAM MEMBER LIST

Management of the Site will be as documented in the *START III Generic QAPP*. Refer to the *START III Generic QAPP* for an organizational chart, communication pathways, personnel responsibilities and qualifications, and special personnel training requirements.

The following personnel will be involved in planning and/or technical activities performed for this data collection activity. Each will receive a copy of the approved FSP. A copy of the FSP will also be retained in the Site file.

Personnel	Title	Organization	Phone Number	Email
Andy Maguire	OSC	EPA	312-353-8782	Macquire.Andrew@epa.gov
Lisa Graczyk	Project Manager	START	312-424-3339	lgraczyk@css-dynamac.com
Ben Maradkel	Site Lead	START	874-918-8084	Ben.Maradkel@westonsolutions.com
Linda Korobka	Health and Safety	START	517-899-9058	Linda.Korobka@westonsolutions.com
Brennan Johnson	Field Personnel	START	773-587-9023	Brennan.Johnson@westonsolutions.com
Rick Mehl	Field Personnel	START	847-254-6981	Rick.Mehl@westonsolutions.com
Tim Walls	Field Personnel	START	847-918-4130	Tim.Walls@westonsolutions.com
Sean Kane	Field Personnel	START	(313) 404-3225	skane@css-dynamac.com
Dave Sena	Field Personnel	START	(574) 261-5413	David.Sena@WestonSolutions.com

Personnel	Title	Organization	Phone Number	Email
Jarod Dempsey	Field Personnel	START	TBD	Jarod.Dempsey@WestonSolutions.com

Notes:

OSC – On-Scene Coordinator

START – Superfund Technical Assessment and Response Team

3. PLANNING AND PROBLEM DEFINITION

3.1 PROBLEM DEFINITION

On March 14, 2014, Buckeye Partners, L.P. (Buckeye Pipeline) reported a release of gasoline and diesel fuel from the two 8-inch pipelines near the intersection of Illinois State Route 113 and Indian Trail Road in Kankakee, Kankakee County, IL (**Figure 2**). The release is estimated to be between 1,000 and 1,500 gallons. A drainage ditch located west of the release location leads to the Kankakee River, which is located approximately 0.5 mile to the north. The Site is in a mixed rural and residential area. Several residential properties are located within 0.25 mile of the release location.

3.2 SITE HISTORY AND BACKGROUND

On March 14, 2014, Buckeye Pipeline began excavation in the area where the pipelines are located. The area north of the pipeline spill across IL-113 was discovered to be heavily contaminated with petroleum product. The area impacted with oil includes a small agricultural field and a drainage ditch. Buckeye Pipeline also identified homes with groundwater wells and provided temporary drinking water to affected residents.

Several Buckeye Pipeline contractors have mobilized to the Site including Antea Group (Antea) Future Environmental, SET Environmental, Conestoga-Rovers and Associates (CRA), and Midwest Contractors. Buckeye Pipeline and its contractors will perform vacuum truck operations, excavation, transport and disposal of impacted environmental media, air monitoring and sampling, surface water sampling, residential drinking water sampling, soil sampling, and boom deployment and maintenance.

3.3 CONTAMINANTS OF CONCERN/TARGET ANALYTES

Based on the constituent compounds associated with gasoline and diesel fuel, the main contaminants of concern at the Site are volatile organic compounds (VOC) including benzene, toluene, ethylbenzene, xylenes, and methyl tert-butyl ether (MTBE), and polycyclic aromatic hydrocarbons (PAH) including naphthalene. Soil, surface water, and residential groundwater samples will be analyzed for VOCs, PAHs, and total petroleum hydrocarbon (TPH) as gasoline-range organics (GRO) and diesel-range organics (DRO).

4. PROJECT DESCRIPTION AND SCHEDULE

Buckeye's contractor, Antea, will be conducting an extent of contamination study which includes hand and Geoprobe[®] direct push soil augering in the release area and collection of soil and water samples. Antea will also be collecting the following samples: surface water samples from the

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drainage ditch, Kankakee River, and the nearby ponded area; residential well groundwater samples from residential properties north of the release; and soil confirmation samples from excavation areas. WESTON START will collect split soil, residential groundwater, and surface water samples with Antea.

WESTON START will provide sample coordination including laboratory procurement and sample shipment. Sample labels and chain-of-custody (COC) paperwork will be generated by WESTON START. Samples will be packaged properly by WESTON START and shipped by courier, or transported directly to the laboratory. The turn-around time for the sample data will be 24 hours to 5 business days. The sample results will be reviewed and validated by a WESTON START chemist.

5. PROJECT QUALITY OBJECTIVES

5.1 PROJECT OBJECTIVES

The objective for this sampling event is to validate Buckeye Pipeline's soil, surface water, and residential groundwater analytical results through a comparison with WESTON START split samples.

5.2 MEASUREMENT AND PERFORMANCE CRITERIA

Generic measurement and performance criteria described in the *START III Generic QAPP* will be used. These criteria will ensure that data are sufficiently sensitive, precise, accurate, and representative to support site decisions.

5.3 DATA QUALITY OBJECTIVES

Data quality objectives address requirements that include when, where, and how to collect samples; the number of samples; and the limits on tolerable error rates. These steps should periodically be revisited as new information about a problem is learned. Sections 4.0 and 6.0 address these objectives.

The PRP contractor will be comparing soil sample analytical results for VOCs and PAHs to Illinois Environmental Protection Agency (IEPA) Tiered Approach to Corrective Action (TACO) Tier 1 Residential Ingestion and Inhalation Standards. Soil sample analytical results for TPH DRO and GRO will be used to determine if to identify specific petroleum compounds present in Site soil.

Surface water sample analytical results for VOCs, PAHs, and TPH DRO and GRO will be compared to determine if to identify specific petroleum compounds present in Site surface water.

The PRP contractor will be comparing residential groundwater samples for VOCs and PAHs to EPA Maximum Contaminant Levels (MCL) and IEPA TACO Tier I Class I Groundwater Remediation Objectives. Residential groundwater analytical results for TPH DRO and GRO will be used to determine if to identify specific petroleum compounds present in Site residential groundwater.

WESTON will be comparing START-collected sample results to the PRP sample results.

6. SAMPLING DESIGN

EPA / START will perform the Site activities detailed in the following subsections. The sample container, volume, and preservation requirements are presented in **Table 2: Sampling and Analysis Summary**.

6.1 SAMPLING PROCEDURES

START will collect split samples with Antea, Buckeye Pipeline's contractor. Samples will be inspected and observations will be recorded in the Site logbook. START will supply sampling jars to Antea to fill or will fill jars directly from Antea's sampling aliquots. Potential samples to be split include soil, groundwater, surface water, and residential well water.

Approximately ten (10) split soil samples and ten (10) split water samples will be collected for analytical laboratory analysis. One (1) duplicate and one (1) matrix spike/matrix spike duplicate (MS/MSD) will be collected for each sample matrix, soil and water.

The sample container, volume, and preservation requirements are presented in **Table 2: Sampling and Analysis Summary**.

6.2 SAMPLE NUMBERING SYSTEM

All samples for analysis, including QC samples, will be given a unique sample number. The sample numbers will be recorded in the field logbook, the COC paperwork, and the shipment documents.

WESTON START will assign each sample a project sample number. The project sample number highlights the suspected contaminated area and location. In addition, the number will be used for documentation purposes in field logbooks as well as for presentation of the analytical data in memoranda and reports. The project sample numbering system will be composed of the components below:

BKG-MatrixXX(Z-Z)-mmddyy

Where:

- "BKG" designates the sample is from the Buckeye Pipeline Gasoline Spill
- "Matrix" indicates the matrix which is "SB" for soil being, "SW" for surface water, and an abbreviated address for residential groundwater
- "XX" is the sequential sample number
- "Z-Z" is the depth of the soil sample

- “mmddyy” is the date

Trip blank samples will be designated with a “TB” suffix.

Examples of the sample identifications are as follows:

- BKG-SB01 (1-2)-031714: Soil sample collected from the soil boring no. 1 from 1-2 feet the below ground surface (bgs) on March 17, 2014.
- BKG-SW01-031714: Surface water sample collected from the first surface water sampling location on March 17, 2014

6.3 MANAGEMENT OF INVESTIGATION-DERIVED WASTES

For purposes of this FSP, investigation-derived waste (IDW) is defined as any byproduct of the field activities that is suspected or known to be contaminated with hazardous substances. The performance of field activities will produce spent personal protective equipment (PPE) and sampling supplies. All of this type of IDW will be double bagged and discarded as general refuse. If required, disposal arrangements will be executed in accordance with appropriate local, state, or federal regulations. WESTON START will refer to the EPA's *Management of Investigation-Derived Wastes During Site Inspections* (EPA, 1991) guidance on off-site disposal policies, if this action is deemed necessary.

7. SAMPLING PROCEDURES

7.1 SAMPLING STANDARD OPERATING PROCEDURES

The procedures to be followed are described in Section 6.0.

7.2 DECONTAMINATION PROCEDURES

General decontamination procedures are described in Section B.2 of the *START III Generic QAPP*. All disposable sampling supplies and PPE will be bagged and sealed in a plastic garbage bag and staged in a designated storage area at the Site.

8. SAMPLE HANDLING, TRACKING, AND CUSTODY PROCEDURES

All samples will be identified, handled, shipped, tracked, and maintained under COC, in accordance with *START III Generic QAPP* Section B.3.

9. FIELD ANALYTICAL METHODS AND PROCEDURES

9.1 FIELD ANALYTICAL METHODS AND STANDARD OPERATING PROCEDURES

Field analytical methods will not be employed during the site assessment

9.2 FIELD TESTING LABORATORY

A field testing laboratory is not anticipated at this time.

9.3 SCREENING/CONFIRMATORY ANALYSES

Soil will be field screened for VOCs using a photoionization detector.

10. FIXED LABORATORY ANALYTICAL METHODS AND PROCEDURES

An EPA-certified commercial laboratory will be used for all analyses. Soil, surface water, and residential groundwater samples will be submitted to:

STAT Analysis Corporation
2242 West Harrison Street # 200
Chicago, IL 60612
312-733-0551

The analytical methods are listed in Table 2 of this FSP.

11. QUALITY CONTROL ACTIVITIES

11.1 FIELD QUALITY CONTROL

Field QC samples will be collected and analyzed for this project at the frequency described in *START III Generic QAPP*, Table 4. The number of QC samples collected for each analytical parameter and concentration level are listed in **Table 2: Sampling and Analysis Summary**.

11.2 ANALYTICAL QUALITY CONTROL

QC for analytical procedures will be performed at the frequency described in *START III Generic QAPP*, Tables 5 and 6. In addition, method-specific QC requirements will be used to ensure data quality.

11.3 PERFORMANCE EVALUATION SAMPLES

Performance Evaluation Samples will not be collected during this sampling event.

12. DOCUMENTATION, RECORDS, AND DATA MANAGEMENT

Documentation, record keeping, and data management activities will be conducted in accordance with the *START III Generic QAPP*, Section B.10.

13. QUALITY ASSURANCE ASSESSMENT AND CORRECTIVE ACTIONS

No field audits will be conducted due to the short-term sampling activity.

14. REPORTS TO MANAGEMENT

Reports to management will be written and distributed in accordance with the *START III Generic QAPP*, Section C.

15. STEPS 1, 2 AND 3: DATA REVIEW REQUIREMENTS AND PROCEDURES

Step 1: Data collection activities, including sample collection and data generation, will be verified in accordance with the *START III Generic QAPP*, Section D.

Step 2: Data will be validated in accordance with the *START III Generic QAPP*, Section D.

A WESTON START chemist will validate the data. Definitive data will be validated following Tier Level II.

Step 3: Data will be reviewed for usability in accordance with the *START III Generic QAPP*, Section D.

TABLES

Table 1
FSP Revision Form

Site: ER - Buckeye Pipeline Gasoline Spill

OSC: Andy Maguire

TDD: S05-0005-1403-006

Date	Rev. No.	Proposed Change to FSP/QAPP	Reason for Change of Scope/Procedures	FSP Section Superseded	Requested By	Approved By

Table 2
Sampling and Analysis Summary

Site: ER - Buckeye Pipeline Gasoline Spill

OSC: Andy Maguire

TDD: S05-0005-1403-006

Matrix	Analytical Parameter	Analytical Method (SW-846)	Containers (Numbers, Size, and Type)	Preservation Requirements	No. of Sampling Locations	No. of Field Duplicate	No. of MS/MSD	No. of Trip Blank	No. of Equip./Rinsate Blank	Total No. of Samples to Lab	Holding Time
Soil	VOCs	5035/8260B	3 40-ml glass 1 2-oz glass	Methanol and Sodium Bisulfite Preservation; Cool to 4°C	10	1	1	0	0	11	14 Days
Soil	PAHs	8270C	1 4-ounce glass	Ice, cool to 4°C	10	1	1	0	0	11	14 Days
Soil	TPHs (DRO and GRO)	8015	1 4-ounce glass 2 40-ml glass	Methanol Preservation; Cool to 4°C	10	1	1	0	0	11	14 Days
Water	VOCs	8260B	3 40-ml VOA vials	HCl to a pH < 2; Cool to 4°C	10	1	1	1	0	11	14 Days
Water	PAHs	8270C	2 1-liter amber glass	Ice, cool to 4°C	10	1	1	0	0	11	7 days
Water	TPHs (DRO and GRO)	8015	1 1-liter amber glass 2 40-ml VOA vials	HCl to a pH < 2; Cool to 4°C	10	1	1	0	0	11	7 days

0Note:

Total number of samples to the laboratory does not include MS/MSD or spike/duplicate samples. However, please note that MS/MSD or spike/duplicate analysis may require additional sample volume.

°C – Degrees Celsius

DRO – Diesel-range organic

Equip. – Equipment

GRO – Gasoline-range organic

MS/MSD – Matrix spike/matrix spike duplicate

No. – Number

Oz. – Ounce

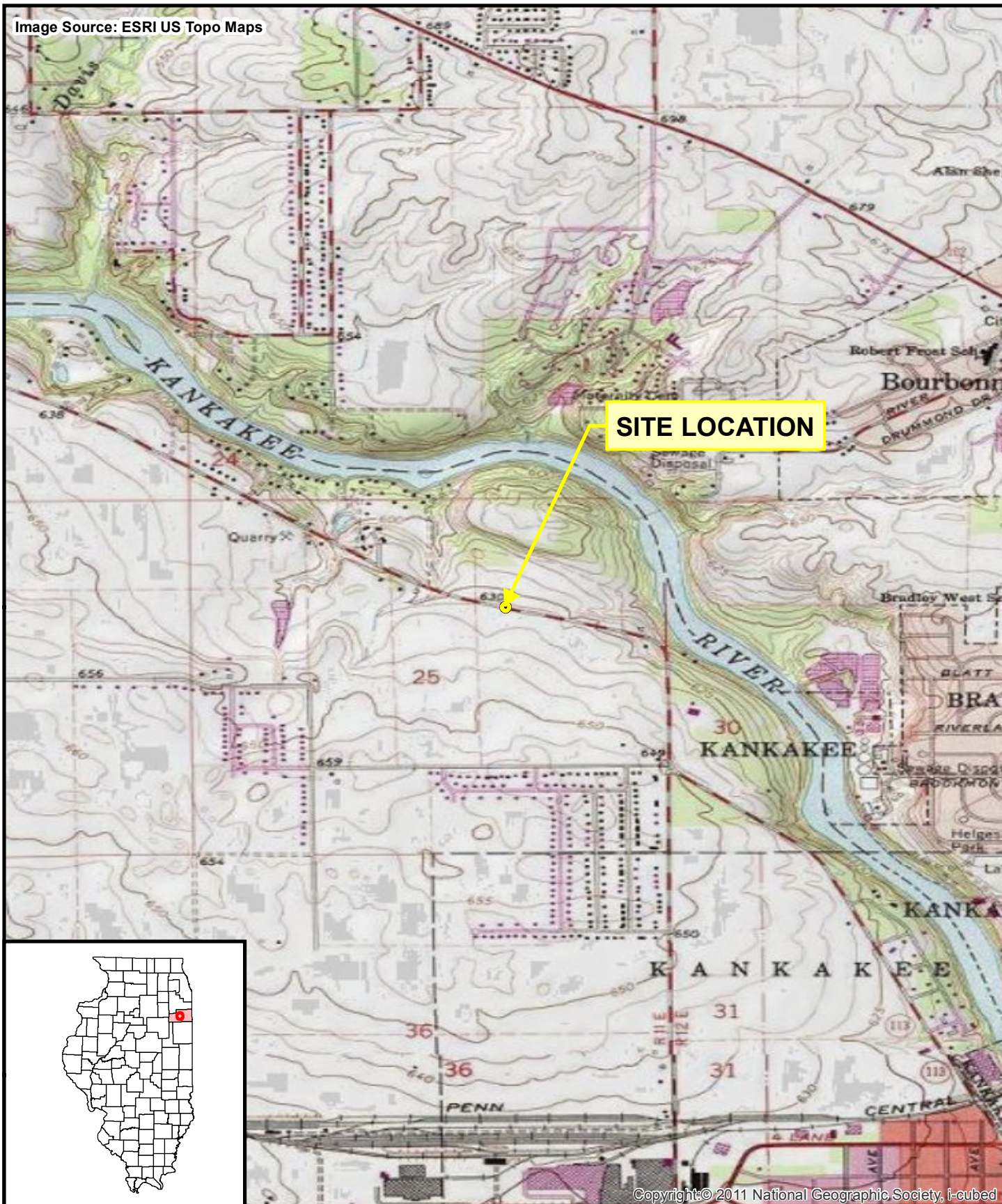
PAH – Polycyclic aromatic hydrocarbon

TPH – Total petroleum hydrocarbon

VOC – Volatile organic compound

FIGURES

Image Source: ESRI US Topo Maps



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Legend

● Site Location

0 2,000
Feet



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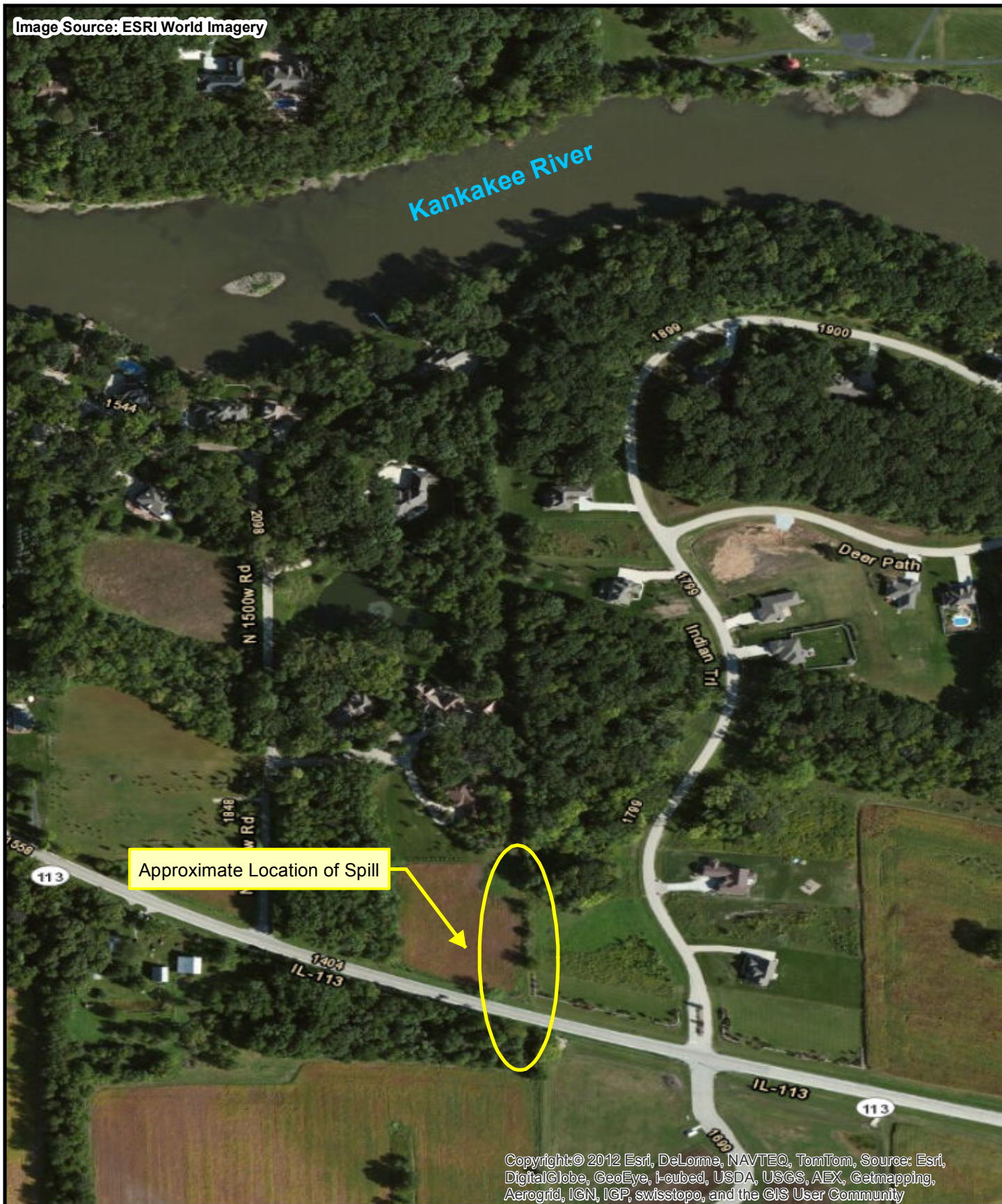
20 N Wacker Dr,
Ste 2035
Chicago, IL 60606

Figure 1

Site Location Map


ER-Buckeye Kankakee Gasoline Spill
Kankakee, Kankakee County, Illinois

Image Source: ESRI World Imagery



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Legend

 Approximate Location of Spill

0 350 Feet



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20 N Wacker Dr,
Ste 2035
Chicago, IL 60606

Figure 2

Site Layout Map
ER-Buckeye Kankakee Gasoline Spill
Kankakee, Kankakee County, Illinois